



# SERVICE MANUAL

## Color Video Monitor

## VMC-8613B

(Product Code : 114 952 23)  
(U.S.A, Canada)



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NOTE: 1. Parts order must contain model number, part number, and description.  
2. Substitute parts may be supplied as the service parts.  
3. N.S.P. : Not available as service parts.

Design and specifications are subject to change without notice.

# Notice



- ☒ CORRECTION      ☐ PRODUCTION CHANGE  
☐ SERVICE FLASH      ☐ ADD INFORMATION

FILE No.

Please add this notice to the service manual listed below.

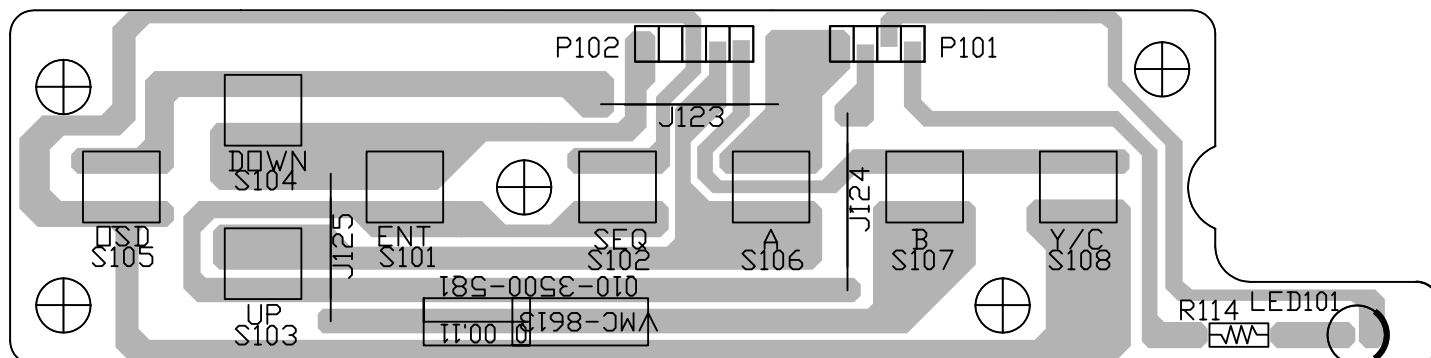
Category: Color Video Monitor		Date :Jun.4.2004
Model Name	Reference No.	Destination
VMC-8613B	SM5310559	U.S.A, Canada

The reason of change.

- A : Misprint      B : Quality Reliability      C : Standardization      D : Design  
 E : Deletion      F : Addition      G : Multiple Use

## PRINTED WIRING BOARDS (P.W.B.) (VIEW FROM SOLDER SIDE)

### FUNCTION P.W.B.





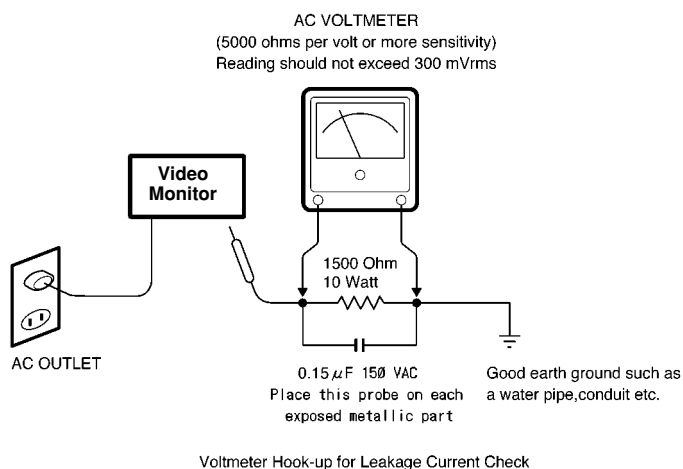
The figure of FUNCTION P.W.B. on C6-page of SM5310559 is a misprint.  
So, please use this figure.

## SAFETY PRECAUTIONS

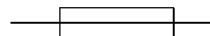
### WARNING:

Service should not be attempted by anyone unfamiliar with the necessary precautions for this recording or playback equipment. The following precautions are necessary during servicing:

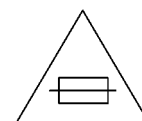
1. Many electrical and mechanical parts in this recorder have special safety-related characteristics for providing protection against shock, fire and other hazards. These characteristics often go unnoticed in a visual inspection, and the protection afforded by them cannot necessarily be obtained by using replacement components with higher ratings (voltage, wattage, etc.).
2. Replacement parts having special safety-related characteristics are identified in this manual, and in the schematic diagrams, by the symbol . These components have values that are of special significance to product safety. Should any component (identified by the symbol ) need to be replaced, use only the part designated in the parts List. Do not deviate from the specified resistance, wattage, and voltage ratings.
3. Before returning the set to the customer, always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as terminals, screwheads, metal overlays, etc. to be sure that the set is safe to operate without the danger of electrical shock. Plug the AC line cord directly into a 120 V AC outlet. (Do not use a line isolation transformer during this check.) Use an AC voltmeter with a sensitivity of 5000 ohms per volt (or more) as follows: Connect a 1500 ohms, 10 watt resistor, paralleled by a 0.15 mfd, 150 VAC capacitor, between a known good earth ground (water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the 1500 ohms resistor and 0.15 mfd capacitor combination. Reverse the AC plug at the AC outlet and repeat the AC voltage measurements for each exposed metallic part. The measured voltage must not exceed 300 mVrms. This corresponds to 200  $\mu$ A AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.



4. Fuse symbol marks.  
For CANADA



For U.S.A.



Fuse rating is marked at  
adjacent fuse.

**UNDERWRITERS LABORATORIES Standard**

**CAUTION** "Risk of fire-replace fuse as marked"

## SPECIFICATIONS

Color system : PAL/NTSC, selected automatically

Picture tube : 13 inch

Resolution : More than 750 TV lines

Input terminals : Separate Y/C signal, mini-DIN 4-pin connector (1)

Y signal: 1.0 Vp-p, 75  $\Omega$  negative sync

C signal: 0.286 Vp-p, 75  $\Omega$  negative sync, bridge connection possible

Composite sync signal: 1.0 Vp-p, 75  $\Omega$  BNC connector (2)

Audio signal: -6dBs (400 mVrms), RCA pin (3), bridge connection possible

Outout terminals : Separate Y/C signal, mini-DIN 4-pin connector (1)

Y signal: 1.0 Vp-p, 75  $\Omega$  negative sync

C signal: 0.286 Vp-p, 75  $\Omega$  negative sync, bridge connection possible

Composite sync signal: 1.0 Vp-p, 75  $\Omega$  BNC connector (2),  
automatic temination setting

Audio signal: -6dBs (400 mVrms), RCA pin (3), bridge connection possible

Audio output : 1 W

Speaker : Variable round x 1

Power source : 100 to 240 V AC, 50/60 Hz

Power consumption : 82 Watts

Ambient operating temperature : -10  $^{\circ}$ C to 45  $^{\circ}$ C storage temperature

Ambient operating humidity : 10 % to 90 %

Dimension (W x H x D ) : 350 x 350 x 360 mm

Weight : 14kg

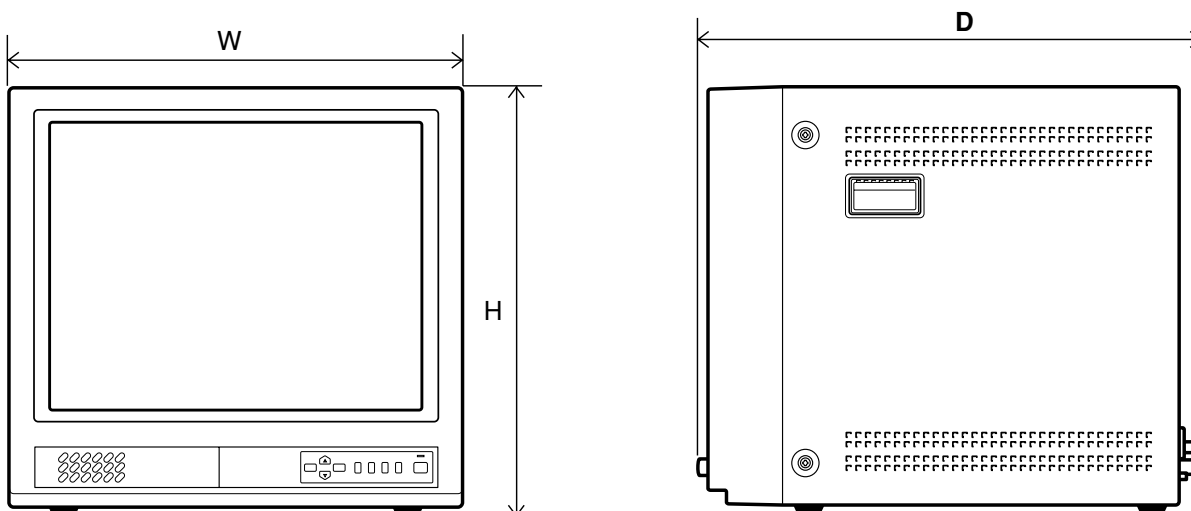


Fig. 1

# 1. OPERATING INSTRUCTIONS

## 1-1. FRONT PANEL CONTROLS

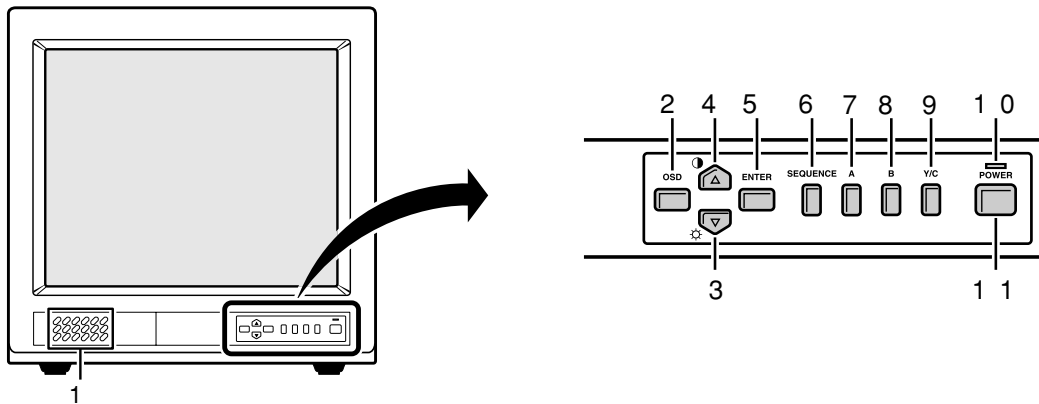


Fig. 2

### 1. Speaker

When the monitor selector button (A, B or Y/C) is pressed, the speaker lets you hear the sound from the components which are connected to the terminals at the rear of the monitor. (Use components which produce audio output.)

### 2. On-screen display button (OSD)

When this button is pressed, the menu screen appears on the monitor screen.

- |              |              |
|--------------|--------------|
| 1.COLOR      | 6.VOLUME     |
| 2.TINT       | 7.DWELL TIME |
| 3.BRIGHTNESS | 8.LANGUAGE   |
| 4.CONTRAST   | 9.TITLE      |
| 5.SHARPNESS  | 10.VERSION   |

### 3. Cursor (▼) button (⏏)

When this button is pressed, the cursor moves down. When it reaches the bottom, it reappears at the top. In addition, this button is used to make adjustment values smaller.

### 4. Cursor (▲) button (⏏)

When this button is pressed, the cursor moves up. When it reaches the top, it reappears at the bottom. In addition, this button is used to make adjustment values larger.

### 5. Display selector button (ENTER)

If this button is pressed while a picture is on the monitor screen, the screen changes to the adjust-

ment screen. If the button is pressed once more, the picture returns to the previous screen.

### 6. Automatic screen selector button (SEQUENCE)

When this button is pressed, the screen changes automatically to the picture from the components which are connected to the terminals at the rear of the monitor.

### 7. Monitor A selector button (A)

When this button is pressed, the audio and video input changes to the component which is connected to the A terminals at the rear of the monitor.

### 8. Monitor B selector button (B)

When this button is pressed, the audio and video input changes to the component which is connected to the B terminals at the rear of the monitor.

### 9. Monitor Y/C selector button (Y/C)

When this button is pressed, the audio and video input changes to the component which is connected to the Y/C terminals at the rear of the monitor.

### 10. Power indicator (POWER)

Lights when the power is on.

### 11. Power button (POWER)

Press this button to turn the power on and off.

## 1-2. REAR PANEL CONTROLS & CONNECTION

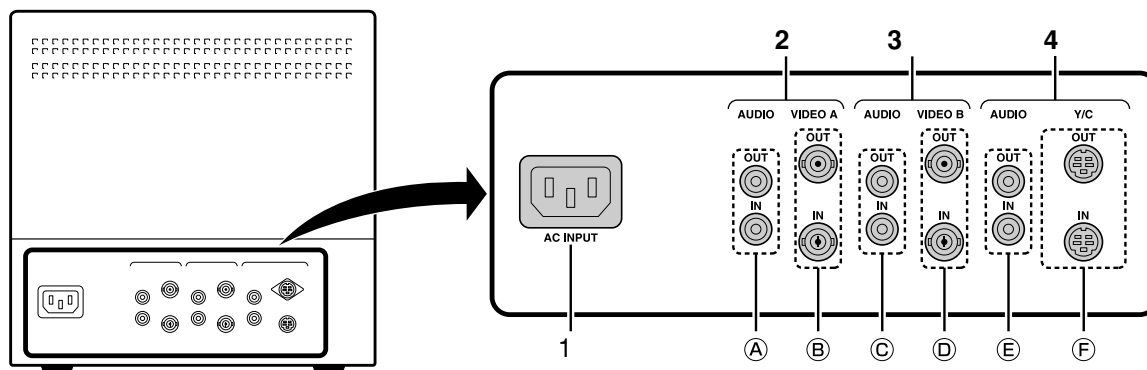


Fig. 3

### 1. AC INPUT socket

Connect the AC power cord (supplied) securely to this socket and to a wall outlet.

### 2. Rear A terminals (AUDIO/VIDEO A terminals)

When the monitor A selector button at the front of the monitor is pressed, the audio and video signals from the component which is connected to these terminals can be monitored.

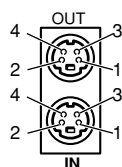
### 3. Rear B terminals (AUDIO/VIDEO B terminals)

When the monitor B selector button at the front of the monitor is pressed, the audio and video signals from the component which is connected to these terminals can be monitored.

### 4. Rear Y/C terminals (AUDIO/VIDEO Y/C terminals)

When the monitor Y/C selector button at the front of the monitor is pressed, the audio and video signals from the component which is connected to these terminals can be monitored.

Y/C (Mini DIN 4 pin) terminal specification



Pin No.	Signal
1	GND (Y)
2	GND (C)
3	Y
4	C

Fig. 4

## 2. DISASSEMBLY

### 2-1. REMOVAL OF CABINET

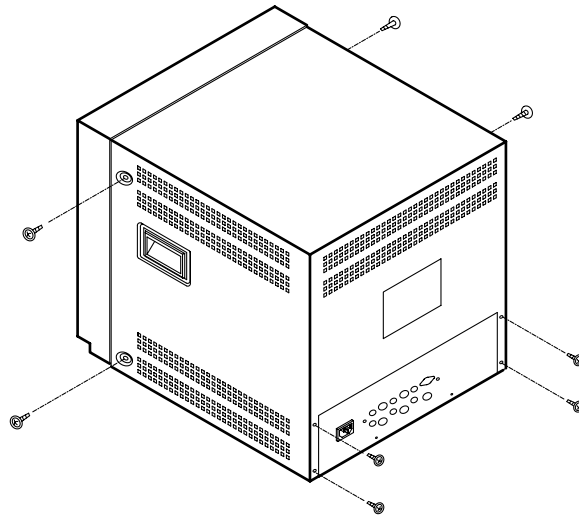


Fig. 5

### 2-2. BOARD LOCATION

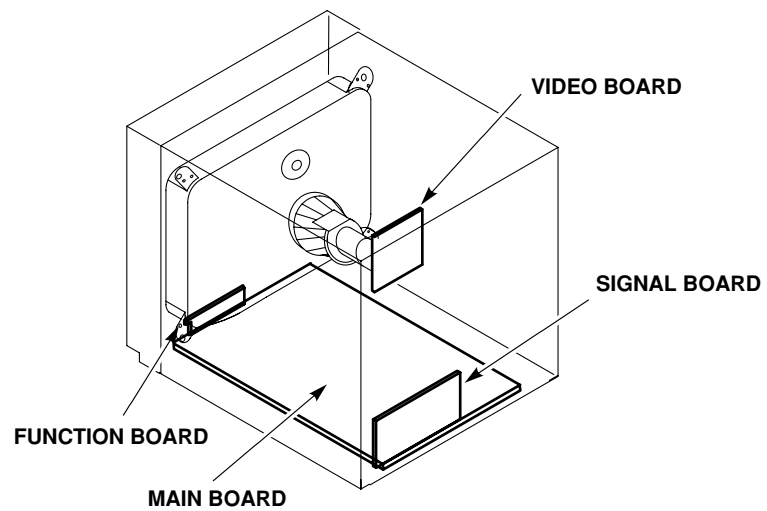


Fig. 6

### 3. SERVICE ADJUSTMENTS

1. Supply power to the set and measuring instruments and allow to warm up for at least 30 minutes.

#### NOTE

Be sure to use a non-metallic driver for adjusting there VRs. A metallic driver can cause damage by shorting.

#### Adjustment tool

1. Digital multi meter
2. Pattern generator
3. Color analyzer

#### Adjustment mode

Over scan mode

ADJUSTMENT ITEM	TIMING PATTERN	SETTING	VR LOCATION	ADJUSTMENT PROCEDURE
CHECK B+ VOLTAGE	PATTERN GENERATOR MONOSCOPE PATTERN			TEST POINT : D910(-) DIGITAL VOLT METER VALUE $46.0 \pm 0.5$ VDC.
HOLD DOWN VOLTAGE SETTING	PATTERN GENERATOR MONOSCOPE PATTERN	BRIGHT VR , CONTRAST VR and SHARP- NESS VR TO MAX.	VR503	TEST POINT : ZD501(-) DIGITAL VOLT METER VALUE $8.5 \pm 0.2$ VDC.
FOCUS ADJUSTMENT	PATTERN GENERATOR MONOSCOPE PATTERN	BRIGHT VR , CONTRAST VR and SHARP- NESS VR TO MAX.	FBT FOCUS VR	Adjusting FBT FOCUS VR to make cscreen corner & center focus be identical.
HORIZONTAL PHASE ADJUSTMENT	PATTERN GENERATOR MONOSCOPE PATTERN	BRIGHT VR , CONTRAST VR and SHARP- NESS VR TO MAX.	VR401	Adjusting VR401 horizontal phase to make screen right and left symmetrize.
VERTICAL LINEARY ADJUSTMENT	PATTERN GENERATOR MONOSCOPE PATTERN	BRIGHT VR , CONTRAST VR and SHARP- NESS VR TO MAX.	VR302	Adjusting vertical linear control VR302 for equal spacing of lines between center extreme of scan.
PINCUSHION ADJUSTMAN	PATTERN GENERATOR CROSS HATCH PATTERN	BRIGHT VR , CONTRAST VR and SHARP- NESS VR TO MAX.	VR304	Adjusting VR304 to make pincushion distortion be identical.
VERTICAL CENTER ADJUSTMENT	PATTERN GENERATOR MONOSCOPE PATTERN	BRIGHT VR , CONTRAST VR and SHARP- NESS VR TO MAX.	VR303	Adjusting VR303 to make screen up & down symmetrize.
VERTICAL SIZE ADJUSTMENT	PATTERN GENERATOR MONOSCOPE PATTERN	BRIGHT VR , CONTRAST VR and SHARP- NESS VR TO MAX.	VR301	Adjusting VR301 to make screen V-size to level wide3/4.

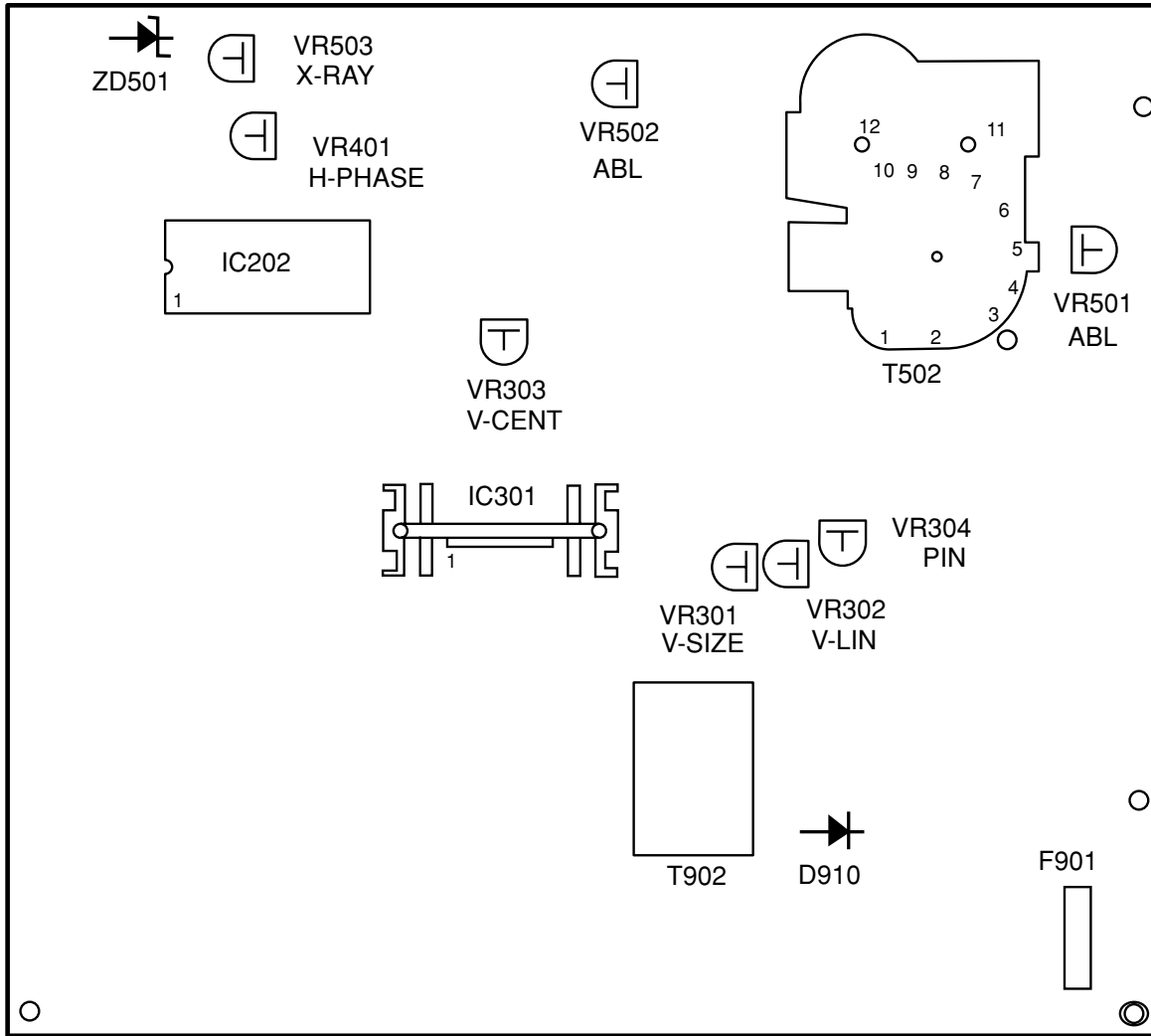


ADJUSTMENT ITEM	TIMING PATTERN	SETTING	VR LOCATION	ADJUSTMENT PROCEDURE
TILT ADJUSTMENT	PATTERN GENERATOR MONOSCOPE PATTERN	BRIGHT VR , CONTRAST VR and SHARPNESS VR TO MAX.		If screen slant and adjust DY to be not slant.
WHITE BALANCE ADJUSTMENT	PATTERN GENERATOR NO SIGNAL	BRIGHT VR , CONTRAST VR and SHARPNESS VR TO MAX.	VR801,VR803, VR805, FBT FOCUS VR	Adjust VR803 G-Bias to center. Adjust FBT screen VR make luminance without video to 0.7 ~ 1.5 FL. Adjust VR801 make X value is $0.281 \pm 0.015$ . Adjust VR805 make Y value is $0.298 \pm 0.015$ .
	PATTERN GENERATOR FULL WHITE	BRIGHT VR , CONTRAST VR and SHARPNESS VR TO MAX.	VR804,VR802, VR501	Adjust VR501 make luminance with video signal to 50 FL. Adjust VR804 make X value is $0.281 \pm 0.015$ . Adjust VR802 make Y value is $0.298 \pm 0.015$ . Dark, bright balance, repeat to adjust correctly X, Y value & luminance to constant.
LUMINANCE ADJUSTMENT	PATTERN GENERATOR NO SIGNAL	BRIGHT VR , CONTRAST VR and SHARPNESS VR TO MAX.	FBT SCREEN VR	Adjust FBT screen VR make luminance without video signal is 0.7 ~ 1.5 FL.
	PATTERN GENERATOR WINDOWS PATTERN	BRIGHT VR , CONTRAST VR and SHARPNESS VR TO MAX.	VR501	Adjust VR501 make luminance is 45 ~ 50 FL.
	PATTERN GENERATOR FULL WHITE	BRIGHT VR , CONTRAST VR and SHARPNESS VR TO MAX.	VR502	Adjust VR502 make luminance is $97 \pm 2$ FL. Then make sure Full White luminance whether it is 45 ~ 50 FL.

The way of adjusting it which a color analyzer is not used for.

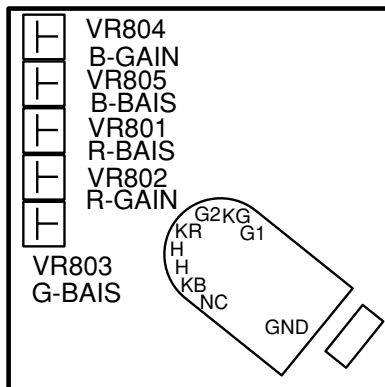
ADJUSTMENT ITEM	TIMING PATTERN	SETTING	VR LOCATION	ADJUSTMENT PROCEDURE
WHITE BALANCE ADJUSTMENT and LUMINANCE ADJUSTMENT	PATTERN GENERATOR NO SIGNAL	BRIGHT VR , CONTRAST VR and SHARPNESS VR TO MAX.	VR801,VR802, VR803,VR804, VR805, FBT SCREEN VR	VR801,VR802,VR803,VR804 and VR805 is center position. Adjust the VR801, VR805 and FBT SCREEN VR to dark gray with screen.
	PATTERN GENERATOR FULL WHITE	BRIGHT VR , CONTRAST VR and SHARPNESS VR TO MAX.	VR804,VR802, VR501	Adjust the VR802 and VR804 to white gray with screen. Adjust the VR501 it makes the screen of the monitor proper brightness.

**MAIN BOARD  
(Parts side)**



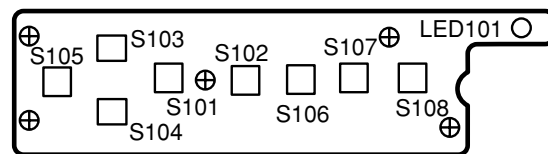
**Fig. 7**

**VIDEO BOARD  
(Parts side)**



**Fig. 8**

**FUNCTION BOARD  
(Parts side)**



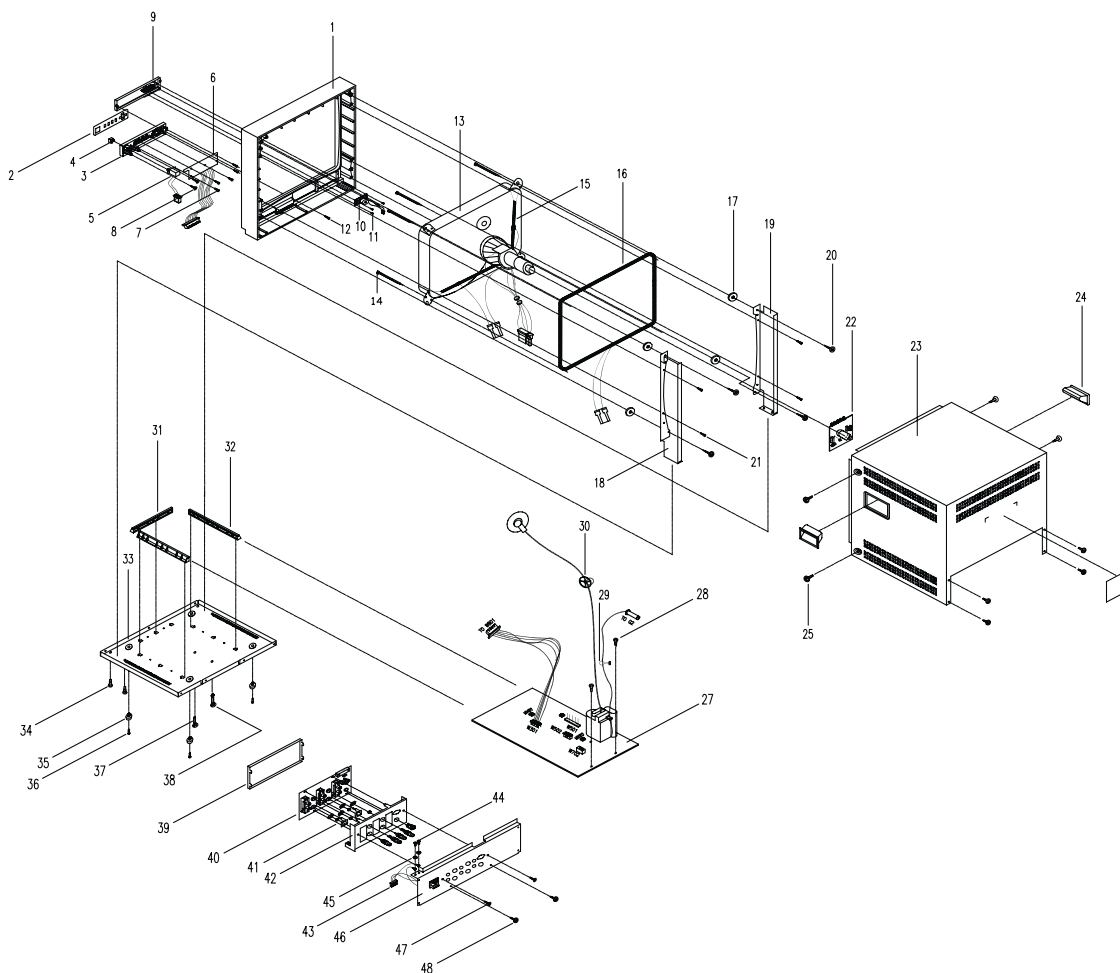
**Fig. 9**

## 4. PARTS LIST

LOCATION	PARTS NO.	DESCRIPTION
<b>CABINET &amp; CHASSIS PARTS</b>		
1	645 048 3509	FRONT PANEL 14" AA-51
2	645 067 9902	DIGITAL VMC-8613B
3	645 048 3516	CONTROL PANEL 14" AA-51
4	645 048 3493	SW KNOB 19" AA-51
5	645 046 6465	SW ASS'Y CH-14DXA
6	645 046 6724	FUNCTION BOARD VMC-8613/8614P
7	645 046 4829	PH SCREW 3*8MM
8	645 034 3605	RH W/W SCR. 3*8MM
9	645 048 3486	SPEAKER PANEL 19" AA-51
10	645 046 6441	SPEAKR S9711-22NQ4171C 8OHM/1W
11	645 034 3605	RH W/W SCR. 3*8MM
12	645 046 4874	BH SCREW 3*12MM
13	△ 645 040 9349	CRT M34AFA13X03 CPT
14	645 038 5605	NYLON CABLE TIE 2.5*120MM
15	645 038 5582	BRAID WIRE CM-14VA-P
16	645 034 4428	DEGAUSSING COIL CM-14A
17	645 034 3650	RUBBER WASHER 6*20*2.5MM
18	645 046 6250	BRACKET LEFT CH-14DXA
19	645 046 6243	BRACKET RIGHT CH-14DXA
20	645 046 4836	PH SCREW 4*12MM
21	645 034 3599	PH W/W SCR. 4*18MM
22	645 046 6649	VIDEO BOARD CH-14DXA
23	645 046 6366	METAL TOP COVER CH-14DXA AA-51
24	645 034 3919	HANDLE COVER CM-14 PA-765A

LOCATION	PARTS NO.	DESCRIPTION
25	645 034 3582	PH W/W SCR. 4*8MM
26		ID LABEL 83*51MM (N.S.P.)
27	645 048 3677	MAIN BOARD VMC-8613/8614P
28	645 034 3612	SCREW+WASHER 3*6MM
29	645 046 5772	PURST LOCK A-11
30	645 034 4268	F.B.T CLIP HV-1
31	645 046 0722	PCB GUIDE RAIL MM-9M
32	645 034 4299	PCB GUIDE RAIL MM-12A
33	645 046 6304	BASE CH-14DXA
34	645 034 3582	PH W/W SCR. 4*8MM
35	645 034 4657	FOOT PAD GL-24H
36	645 034 3926	FOOT PAD RIVET MM-12A GL-24H
37	645 046 5796	SPACER SUPPORTS FCB-15
38	645 046 5789	SPACER SUPPORTS SCC-15
39	645 046 6380	SHIELDING PLATE DXA SERIES
40	645 046 6731	SIGNAL BOARD CM-21DXA
41	645 046 6373	GND PLATE DX SERIES 20*13*0.5
42	645 046 6281	RACK PLATE CM-21DXA
43	△ 645 046 6533	AC SOCKET ASS'Y MM-20A
44	645 035 6216	BH SCREW 4*6MM
45	645 035 6223	WASHER OUT TEETH 4.5*8.5*0.5MM
46	645 046 6434	JACK PLATE CH-14DXA AA-51
47	645 046 4850	PH W/W SCR. 3*6MM
48	645 034 3582	PH W/W SCR. 4*8MM

**N.S.P.: Not available as service parts.**



# ELECTRICAL PARTS

## Note:

1. Materials of Capacitors and Resistors are abbreviated as follows ;

Resistors	Capacitors
CF RES	MEF CAP
MF RES	
MOF RES	MEMB CAP
	PEI CAP
	PPN CAP
	PPS CAP
	MPP CAP
	X CAP(MKP)
	CC CAP
	EC CAP
Carbon Film Resistor	
Metal Film Resistor	
Metallized Oxide Film Resistor	
	Metallized Polyester Film Capacitor (Non-inductive)
	Mini Box Metallized Polyester Capacitor (Non-inductive)
	Polyester Film Capacitor (Inductive)
	Polypropylene Film Capacitor (Non-inductive)
	Polypropylene and Metallized Polypropylene Film Capacitor (Non-inductive)
	Metallized Polypropylene Capacitor (Non-inductive)
	Metallized Polypropylene Film Capacitor (Non-inductive)
	Ceramic Capacitor
	Electrolytic Capacitor

2. N.S.P. : Not available as service parts.

LOCATION	PARTS NO.	DESCRIPTION
<b>SW ASS'Y CH-14DXA</b>		
	645 046 6465	
		(MISCELLANEOUS)
	△ 645 046 5086	POWER SWITCH PS3-22SP-W4CW
OR	△ 645 048 3387	POWER SWITCH PP6-10S-1SLH-2
B902	645 048 3578	L/W HOUSING 1015 18AWG L=300MM

<b>AC SOCKET ASS'Y MM-20A</b>		
	645 046 6533	
		(MISCELLANEOUS)
	△ 645 034 3988	POWER SOCKET SS-120E
	645 046 5550	L/W HOUSING B/G&Y/B 1015 18AWG
	645 046 6069	FERRITE CORE T22.5*6.4*13.8

<b>VIDEO BOARD CH-14DXA</b>		
	645 046 6649	
		(CAPACITORS)
C801	645 034 2608	EC CAP 100UF 16 V
C802	645 034 2745	EC CAP 2.2UF 250 V
C803	645 038 5407	CC CAP 561PF 50V Y5P
C804	645 038 5407	CC CAP 561PF 50V Y5P
C805	645 038 5407	CC CAP 561PF 50V Y5P
C806	645 043 3139	CC CAP 103PF 1.5KV Z5U
		(DIODES)
D803	645 034 3377	RECTIFIER DIODE 1N4003
D804	645 034 3346	RECTIFIER DIODE BYT52M T52MM
D805	645 034 3346	RECTIFIER DIODE BYT52M T52MM
D806	645 034 3346	RECTIFIER DIODE BYT52M T52MM
D807	645 034 3346	RECTIFIER DIODE BYT52M T52MM
D808	645 034 3346	RECTIFIER DIODE BYT52M T52MM
D809	645 034 3346	RECTIFIER DIODE BYT52M T52MM
		(SEMICONDUCTORS)
Q801	645 034 3216	TR 2SC1815GR
Q802	645 040 9110	TR 2SC2688L
Q803	645 034 3216	TR 2SC1815GR
Q804	645 040 9110	TR 2SC2688L
Q805	645 034 3216	TR 2SC1815GR
Q806	645 040 9110	TR 2SC2688L
		(RESISTORS)
R801	645 040 8892	MOF RES 8.2 KOHM 3W +/-5%
R802	645 034 2417	MF RES 2.2 KOHM 1/2W +/-1%
R803	645 034 2141	CF RES 3.3 KOHM 1/4W +/-5%
R804	645 045 9566	CF RES 100OHM 1/4W +/-5%
R805	645 034 1861	CF RES 1 KOHM 1/4W +/-5%
R806	645 040 8892	MOF RES 8.2 KOHM 3W +/-5%
R807	645 034 2417	MF RES 2.2 KOHM 1/2W +/-1%
R808	645 034 2141	CF RES 3.3 KOHM 1/4W +/-5%
R809	645 045 9665	CF RES 240OHM 1/4W +/-5%
R810	645 034 1861	CF RES 1 KOHM 1/4W +/-5%

LOCATION	PARTS NO.	DESCRIPTION
R811	645 040 8892	MOF RES 8.2 KOHM 3W +/-5%
R812	645 034 2417	MF RES 2.2 KOHM 1/2W +/-1%
R813	645 034 2141	CF RES 3.3 KOHM 1/4W +/-5%
R814	645 045 9566	CF RES 100OHM 1/4W +/-5%
R815	645 034 1861	CF RES 1 KOHM 1/4W +/-5%
R816	645 046 3235	MOF RES 220 KOHM 1/2W +/-5%
		(VARIABLE RESISTORS)
VR801	645 046 4799	POT VR 5 KOHM 6DIA S TYPE
VR802	645 046 4768	POT VR METAL 300OHM 6D. S TYPE
VR803	645 046 4799	POT VR 5 KOHM 6DIA S TYPE
VR804	645 046 4768	POT VR METAL 300OHM 6D. S TYPE
VR805	645 046 4799	POT VR 5 KOHM 6DIA S TYPE
		(MISCELLANEOUS)
G2	645 034 3667	CONNECTOR BASE P235142 (N.S.P.)
GND	645 034 3698	CONNECTOR BASE M11352 (N.S.P.)
W801	645 034 3773	CONNECTOR BASE M241855 (N.S.P.)
W802	645 034 3759	CONNECTOR BASE M241854-X (N.S.P.)
SGP801	645 038 5520	SPARK GAP 250V +/-20% TS TYPE
SGP802	645 038 5520	SPARK GAP 250V +/-20% TS TYPE
SGP803	645 038 5520	SPARK GAP 250V +/-20% TS TYPE
SGP804	645 035 9392	SPARK GAP 0.75PF 1KV +/-10%
SGP805	645 035 9392	SPARK GAP 0.75PF 1KV +/-10%
SK801	645 040 9240	CRT SOCKET ISHM35S

## MAIN BOARD VMC-8613/8614P

	645 048 3677	
		(CAPACITORS)
C101	645 034 2677	EC CAP 1UF 50 V
C102	645 034 2837	CC CAP 104PF 50V Y5V
C103	645 034 2714	EC CAP 220UF 16 V
C104	645 046 3853	CC CAP 33PF 50V Y5P
C105	645 046 3853	CC CAP 33PF 50V Y5P
C107	645 046 3594	EC CAP 1000UF 10V
C108	645 044 3695	EC CAP 10UF 50 V
C109	645 044 3695	EC CAP 10UF 50 V
C110	645 044 3695	EC CAP 10UF 50 V
C111	645 044 3695	EC CAP 10UF 50 V
C112	645 044 3695	EC CAP 10UF 50 V
C120	645 046 3853	CC CAP 33PF 50V Y5P
C121	645 046 3853	CC CAP 33PF 50V Y5P
C122	645 046 4287	MEMB CAP .1UF 63V +/-5%
C123	645 046 4287	MEMB CAP .1UF 63V +/-5%
C124	645 046 4287	MEMB CAP .1UF 63V +/-5%
C125	645 034 2837	CC CAP 104PF 50V Y5V
C126	645 044 3695	EC CAP 10UF 50 V
C127	645 046 4003	PEI CAP .022UF 100V +/-5%
C128	645 034 2677	EC CAP 1UF 50 V
C218	645 046 4287	MEMB CAP .1UF 63V +/-5%
C219	645 046 4003	PEI CAP .022UF 100V +/-5%
C221	645 046 4287	MEMB CAP .1UF 63V +/-5%
C222	645 044 3695	EC CAP 10UF 50 V
C223	645 045 9962	EC CAP 47UF 25 V
C224	645 034 3049	MEMB CAP .47UF 63V +/-5%

LOCATION	PARTS NO.	DESCRIPTION	LOCATION	PARTS NO.	DESCRIPTION
C225	645 034 2738	EC CAP 2.2UF 50 V	C929	645 034 2837	CC CAP 104PF 50V Y5V
C226	645 034 3049	MEMB CAP .47UF 63V +/-5%	C930	645 034 2653	EC CAP 1000UF 16V 10DIA
C227	645 048 3301	EC CAP 220UF 10 V	C931	645 034 2783	EC CAP 470UF 16 V
C228	645 048 3301	EC CAP 220UF 10 V	C932	645 034 2837	CC CAP 104PF 50V Y5V
C229	645 034 2776	EC CAP 47UF 16 V			(DIODES)
C230	645 034 2837	CC CAP 104PF 50V Y5V	D101	645 034 3315	DIODE 1N4148
C231	645 034 2936	PEI CAP .1UF 50V +/-5%	OR	645 034 3308	DIODE 1N4148
C232	645 034 2936	PEI CAP .1UF 50V +/-5%	D102	645 034 3315	DIODE 1N4148
C233	645 040 8984	PEI CAP .001UF 50V +/-5%	OR	645 034 3308	DIODE 1N4148
C234	645 040 8984	PEI CAP .001UF 50V +/-5%	D103	645 034 3315	DIODE 1N4148
C235	645 034 2967	PEI CAP .0047UF 50V +/-5%	OR	645 034 3308	DIODE 1N4148
C236	645 046 4287	MEMB CAP .1UF 63V +/-5%	D104	645 034 3315	DIODE 1N4148
C237	645 046 3914	CC CAP 15PF 50V +/-5%	OR	645 034 3308	DIODE 1N4148
C238	645 046 3921	CC CAP 20PF 50V +/-5%	D107	645 034 3315	DIODE 1N4148
C239	645 046 4003	PEI CAP .022UF 100V +/-5%	OR	645 034 3308	DIODE 1N4148
C240	645 034 2738	EC CAP 2.2UF 50 V	D109	645 040 9141	RECTIFIER DIODE PG102R
C250	645 044 3695	EC CAP 10UF 50 V	D110	645 034 3315	DIODE 1N4148
C260	645 034 2783	EC CAP 470UF 16 V	OR	645 034 3308	DIODE 1N4148
C301	645 046 0036	PEI CAP .0027UF 50V +/-5%	D112	645 034 3315	DIODE 1N4148
C302	645 046 4287	MEMB CAP .1UF 63V +/-5%	OR	645 034 3308	DIODE 1N4148
C303	645 034 2738	EC CAP 2.2UF 50 V	D209	645 034 3315	DIODE 1N4148
C304	645 046 3709	EC CAP 2200UF 25V 25*16MM	OR	645 034 3308	DIODE 1N4148
C305	645 044 3695	EC CAP 10UF 50 V	D210	645 034 3315	DIODE 1N4148
C307	645 040 8984	PEI CAP .001UF 50V +/-5%	OR	645 034 3308	DIODE 1N4148
C308	645 034 2967	PEI CAP .0047UF 50V +/-5%	D211	645 034 3315	DIODE 1N4148
C309	645 034 2929	PEI CAP .01UF 50V +/-5%	OR	645 034 3308	DIODE 1N4148
C310	645 040 8984	PEI CAP .001UF 50V +/-5%	D301	645 034 3377	RECTIFIER DIODE 1N4003
C311	645 034 3049	MEMB CAP .47UF 63V +/-5%	D402	645 046 0272	RECTIFIER DIODE BYT56J
C312	645 034 2622	EC CAP 100UF 35 V	D403	645 046 0272	RECTIFIER DIODE BYT56J
C313	645 034 2790	EC CAP 470UF 35 V	D501	645 040 9158	RECTIFIER DIODE PG104R
C314	645 046 4317	MEMB CAP .68UF 63V +/-5%	D502	645 034 3315	DIODE 1N4148
C316	645 046 3747	EC CAP 47UF 50 V	OR	645 034 3308	DIODE 1N4148
C401	645 046 4041	PEI CAP .056UF 50V +/-5%	D503	645 034 3315	DIODE 1N4148
C402	645 046 3747	EC CAP 47UF 50 V	OR	645 034 3308	DIODE 1N4148
C403	645 046 3891	CC CAP 561PF 1KV Y5P	D504	645 040 9141	RECTIFIER DIODE PG102R
C404	645 067 9872	MPP CAP 1.5UF 250V +/-5%	D505	645 040 9141	RECTIFIER DIODE PG102R
C405	645 046 4225	PPN CAP .033UF 630V +/-5%	D901	645 046 4676	RECTIFIER DIODE PG208
C409	645 048 3332	EC CAP 470UF 50V <=13DIA	D902	645 046 4676	RECTIFIER DIODE PG208
C410	645 046 4287	MEMB CAP .1UF 63V +/-5%	D903	645 046 4676	RECTIFIER DIODE PG208
C411	645 046 4256	PL CAP .0027UF 100V +/-2%	D904	645 046 4676	RECTIFIER DIODE PG208
C412	645 034 2967	PEI CAP .0047UF 50V +/-5%	D905	645 034 3346	RECTIFIER DIODE BYT52M
C413	645 034 2677	EC CAP 1UF 50 V	D906	645 040 9141	RECTIFIER DIODE PG102R
C501	645 046 4126	MEF CAP .22UF 100V +/-5%	D907	645 034 3315	DIODE 1N4148
C502	645 044 3695	EC CAP 10UF 50 V	OR	645 034 3308	DIODE 1N4148
C503	645 046 3662	EC CAP 22UF 200 V	D908	645 034 3315	DIODE 1N4148
C504	645 046 4287	MEMB CAP .1UF 63V +/-5%	OR	645 034 3308	DIODE 1N4148
C506	645 044 3695	EC CAP 10UF 50 V	D909	645 034 3315	DIODE 1N4148
C507	645 034 2790	EC CAP 470UF 35 V	OR	645 034 3308	DIODE 1N4148
C706	645 034 3049	MEMB CAP .47UF 63V +/-5%	D910	645 046 4690	RECTIFIER DIODE UF5402G
C707	645 034 2936	PEI CAP .1UF 50V +/-5%	D911	645 046 4683	RECTIFIER DIODE UF202G
C708	645 034 2653	EC CAP 1000UF 16V 10DIA	D912	645 046 4683	RECTIFIER DIODE UF202G
C901	△ 645 034 3070	X CAP .1UF 250V +/-10%	D913	645 046 4683	RECTIFIER DIODE UF202G
OR	△ 645 040 9066	X CAP .1UF 275V +/-20%	D914	645 034 3346	RECTIFIER DIODE BYT52M
C902	△ 645 034 3070	X CAP .1UF 250V +/-10%	ZD201	645 046 4614	ZENER DIODE HZ5C1
OR	△ 645 040 9066	X CAP .1UF 275V +/-20%	ZD501	△ 645 046 4621	ZENER DIODE HZ9C1
C903	△ 645 034 3087	Y CAP 472PF 400V +/-20%	ZD901	△ 645 040 9134	ZENER DIODE HZ22-1
C904	△ 645 034 3087	Y CAP 472PF 400V +/-20%	OR	△ 645 046 4638	ZENER DIODE MTZJ22-B 1/2W
C905	645 046 3693	EC CAP 220UF 400V 25*40MM			(FUSE)
C906	645 034 2974	MEF CAP .1UF 630V +/-5%	F901	△ 645 038 5650	FUSE 3.15A/250V SLOWBLOW 5*20
C907	645 052 1263	EC CAP 100UF 35V 105 DEGREE C			(INTEGRATED CIRCUITS)
C909	645 038 5407	CC CAP 561PF 50V Y5P	IC101	645 046 4409	LINEAR IC NT68P61A
C910	645 046 4270	MEMB CAP .01UF 100V +/-5%	OR	645 046 5260	IC 40 P
C911	645 046 4270	MEMB CAP .01UF 100V +/-5%	IC102	645 046 4416	LINEAR IC 24LC02B
C912	645 046 4287	MEMB CAP .1UF 63V +/-5%	IC103	645 046 4423	LINEAR IC STV9427
C913	645 046 4270	MEMB CAP .01UF 100V +/-5%	IC202	645 046 4430	LINEAR IC TDA8361
C915	△ 645 034 3087	Y CAP 472PF 400V +/-20%	IC203	645 046 4447	LINEAR IC TDA4665
C916	645 046 3792	CC CAP 102PF 3KV Y5P	IC301	△ 645 034 3148	LINEAR IC TDA3653B
C917	645 046 3624	EC CAP P=7.5MM 1000UF 50V 16D.	IC701	645 034 3124	LINEAR IC TDA7056B
C918	645 046 3624	EC CAP P=7.5MM 1000UF 50V 16D.	IC901	645 034 3094	LINEAR IC UC3842AN
C919	645 046 3846	CC CAP 222PF 2KV Z5U 7.5MM	IC902	645 040 9073	REGULATOR IC KA431AZ
C920	645 034 2660	EC CAP 1000UF 35 V	IC903	645 046 4379	LINEAR IC TLP721F
C921	645 034 2660	EC CAP 1000UF 35 V	IC904	645 046 4485	REGULATOR IC KA7808
C922	645 034 2653	EC CAP 1000UF 16V 10DIA	IC906	645 046 4478	REGULATOR IC MC7805
C923	645 034 2653	EC CAP 1000UF 16V 10DIA			(COILS)
C924	645 048 3295	EC CAP 1000UF 25V <=1/13DIA	L402	645 046 6083	LINEARITY COIL 13 UH +/-20%
C925	645 048 3295	EC CAP 1000UF 25V <=1/13DIA	L901	645 046 0876	CHOKE COIL 20 UH +/-20%
C926	645 034 3025	MEMB CAP .22UF 63V +/-5%	L902	645 046 0876	CHOKE COIL 20 UH +/-20%
C928	645 034 2608	EC CAP 100UF 16 V	L903	645 046 0876	CHOKE COIL 20 UH +/-20%

LOCATION	PARTS NO.	DESCRIPTION	LOCATION	PARTS NO.	DESCRIPTION
L904	645 046 0876	CHOKO COIL 20 UH +/-20% (SEMICONDUCTORS)	R167	645 046 2191	CF RES 10 KOHM 1/6W +/-5%
Q101	645 034 3216	TR 2SC1815GR	R168	645 046 2788	CF RES 4.7 KOHM 1/6W +/-5%
Q102	645 034 3216	TR 2SC1815GR	R231	645 046 2481	CF RES 22 KOHM 1/6W +/-5%
Q103	645 034 3216	TR 2SC1815GR	R232	645 046 2320	CF RES 15 KOHM 1/6W +/-5%
Q105	645 034 3216	TR 2SC1815GR	R233	645 034 1854	CF RES 1 KOHM 1/6W +/-5%
Q106	645 046 4577	TR DTC124ES	R234	645 046 2900	CF RES 5.6 KOHM 1/6W +/-5%
Q107	645 034 3216	TR 2SC1815GR	R236	645 034 1885	CF RES 100 KOHM 1/6W +/-5%
Q208	645 034 3216	TR 2SC1815GR	R239	645 046 2467	CF RES 220OHM 1/6W +/-5%
Q209	645 034 3216	TR 2SC1815GR	R240	645 046 2467	CF RES 220OHM 1/6W +/-5%
Q210	645 034 3216	TR 2SC1815GR	R241	645 046 2467	CF RES 220OHM 1/6W +/-5%
Q211	645 046 4577	TR DTC124ES	R242	645 034 1854	CF RES 1 KOHM 1/6W +/-5%
Q212	645 046 4577	TR DTC124ES	R243	645 046 2504	CF RES 220 KOHM 1/6W +/-5%
Q301	645 034 3216	TR 2SC1815GR	R248	645 046 2528	CF RES 2.4 KOHM 1/6W +/-5%
Q302	645 058 8273	TR HSB649AC	R249	645 046 2900	CF RES 5.6 KOHM 1/6W +/-5%
Q303	645 046 0203	TR 2SD667C	R252	645 046 2658	CF RES 360OHM 1/6W +/-5%
Q304	645 046 4515	TR 2SB647	R253	645 034 1885	CF RES 100 KOHM 1/6W +/-5%
Q305	645 034 3216	TR 2SC1815GR	R254	645 046 2580	CF RES 3 KOHM 1/6W +/-5%
Q401	645 034 3247	TR 2SC4489	R255	645 046 3020	CF RES 750OHM 1/6W +/-5%
Q402	△ 645 040 9103	TR 2SC5296	R261	645 046 2795	CF RES 47 KOHM 1/6W +/-5%
Q403	645 046 4577	TR DTC124ES	R301	645 046 2320	CF RES 15 KOHM 1/6W +/-5%
Q501	645 034 3216	TR 2SC1815GR	R302	645 046 2405	CF RES 18 KOHM 1/6W +/-5%
Q502	645 034 3209	TR 2SA733P	R303	645 046 2962	CF RES 68OHM 1/6W +/-5%
Q503	645 034 3209	TR 2SA733P	R304	645 046 2672	CF RES 36 KOHM 1/6W +/-5%
Q901	645 058 8280	FET SSS7N60B	R305	645 040 8724	CF RES 1OHM 1/2W +/-5%
Q902	645 035 6209	SCR MCR100-6 (RESISTORS)	R306	645 046 2559	CF RES 2.7 KOHM 1/6W +/-5%
R101	645 046 2795	CF RES 47 KOHM 1/6W +/-5%	R307	645 046 2191	CF RES 10 KOHM 1/6W +/-5%
R102	645 046 2795	CF RES 47 KOHM 1/6W +/-5%	R308	645 046 2788	CF RES 4.7 KOHM 1/6W +/-5%
R104	645 046 2191	CF RES 10 KOHM 1/6W +/-5%	R309	645 046 2184	CF RES 100OHM 1/2W +/-5%
R105	645 046 2634	CF RES 33 KOHM 1/6W +/-5%	R311	645 034 1854	CF RES 1 KOHM 1/6W +/-5%
R106	645 046 2221	CF RES 1 MOHM 1/6W +/-5%	R312	645 046 3150	MOF RES 100OHM 1W +/-5%
R107	645 046 2191	CF RES 10 KOHM 1/6W +/-5%	R313	645 046 3204	MOF RES 1.8OHM 2W +/-5%
R108	645 046 2191	CF RES 10 KOHM 1/6W +/-5%	R314	645 034 2097	CF RES 270OHM 1/2W +/-5%
R109	645 046 2191	CF RES 10 KOHM 1/6W +/-5%	R315	645 046 3013	CF RES 75OHM 1/2W +/-5%
R110	645 046 2191	CF RES 10 KOHM 1/6W +/-5%	R316	645 046 2399	CF RES 1.8 KOHM 1/6W +/-5%
R111	645 046 2191	CF RES 10 KOHM 1/6W +/-5%	R317	645 046 2634	CF RES 33 KOHM 1/6W +/-5%
R115	645 046 2795	CF RES 47 KOHM 1/6W +/-5%	R318	645 046 2757	CF RES 47OHM 1/6W +/-5%
R116	645 046 2795	CF RES 47 KOHM 1/6W +/-5%	R319	645 046 2283	CF RES 12 KOHM 1/6W +/-5%
R120	645 046 2191	CF RES 10 KOHM 1/6W +/-5%	R320	645 046 3167	MOF RES 100OHM 3W +/-5%
R121	645 046 2191	CF RES 10 KOHM 1/6W +/-5%	R321	645 040 8762	CF RES 180OHM 1/2W +/-5%
R122	645 046 2658	CF RES 360OHM 1/6W +/-5%	R322	645 048 3226	CF RES 1.3 MOHM 1/6W +/-5%
R123	645 046 2474	CF RES 2.2 KOHM 1/6W +/-5%	R323	645 034 1885	CF RES 100 KOHM 1/6W +/-5%
R124	645 046 2191	CF RES 10 KOHM 1/6W +/-5%	R326	645 034 1885	CF RES 100 KOHM 1/6W +/-5%
R125	645 046 2559	CF RES 2.7 KOHM 1/6W +/-5%	R327	645 046 2191	CF RES 10 KOHM 1/6W +/-5%
R126	645 046 2191	CF RES 10 KOHM 1/6W +/-5%	R401	645 046 3075	CF RES 820 KOHM 1/6W +/-5%
R127	645 046 2269	CF RES 120OHM 1/6W +/-5%	R402	645 046 2320	CF RES 15 KOHM 1/6W +/-5%
R128	645 046 2474	CF RES 2.2 KOHM 1/6W +/-5%	R403	645 046 2450	CF RES 22OHM 1/6W +/-5%
R129	645 046 2474	CF RES 2.2 KOHM 1/6W +/-5%	R404	645 046 2788	CF RES 4.7 KOHM 1/6W +/-5%
R130	645 046 2689	CF RES 390OHM 1/6W +/-5%	R405	645 046 2757	CF RES 47OHM 1/6W +/-5%
R131	645 046 2474	CF RES 2.2 KOHM 1/6W +/-5%	R406	645 046 3211	MOF RES 20OHM 3W +/-5%
R132	645 046 2474	CF RES 2.2 KOHM 1/6W +/-5%	R409	645 046 2757	CF RES 47OHM 1/6W +/-5%
R133	645 046 2795	CF RES 47 KOHM 1/6W +/-5%	R410	645 034 2479	MOF RES 150OHM 1W +/-5%
R134	645 046 2795	CF RES 47 KOHM 1/6W +/-5%	R414	645 046 2825	CF RES 4.7OHM 1/6W +/-5%
R136	645 046 2191	CF RES 10 KOHM 1/6W +/-5%	R415	645 046 3044	CF RES 8.2 KOHM 1/6W +/-5%
R139	645 046 2795	CF RES 47 KOHM 1/6W +/-5%	R501	645 034 1861	CF RES 1 KOHM 1/4W +/-5%
R140	645 046 2795	CF RES 47 KOHM 1/6W +/-5%	R502	645 034 1922	CF RES 12 KOHM 1/4W +/-5%
R141	645 046 2375	CF RES 180OHM 1/6W +/-5%	R503	645 046 2320	CF RES 15 KOHM 1/6W +/-5%
R142	645 046 2962	CF RES 68OHM 1/6W +/-5%	R504	645 046 2993	CF RES 6.8 KOHM 1/6W +/-5%
R143	645 046 2771	CF RES 470OHM 1/6W +/-5%	R505	645 046 3280	MOF RES 3OHM 3W +/-5%
R144	645 034 1854	CF RES 1 KOHM 1/6W +/-5%	R506	645 046 2788	CF RES 4.7 KOHM 1/6W +/-5%
R145	645 046 2283	CF RES 12 KOHM 1/6W +/-5%	R507	645 046 2566	CF RES 27 KOHM 1/6W +/-5%
R146	645 046 2283	CF RES 12 KOHM 1/6W +/-5%	R508	645 046 2283	CF RES 12 KOHM 1/6W +/-5%
R147	645 046 2283	CF RES 12 KOHM 1/6W +/-5%	R509	645 046 2634	CF RES 33 KOHM 1/6W +/-5%
R149	645 046 2221	CF RES 1 MOHM 1/6W +/-5%	R510	645 046 2283	CF RES 12 KOHM 1/6W +/-5%
R150	645 046 2191	CF RES 10 KOHM 1/6W +/-5%	R511	645 034 1885	CF RES 100 KOHM 1/6W +/-5%
R151	645 046 2191	CF RES 10 KOHM 1/6W +/-5%	R512	645 046 2474	CF RES 2.2 KOHM 1/6W +/-5%
R152	645 034 1854	CF RES 1 KOHM 1/6W +/-5%	R710	645 046 2337	CF RES 1.6 KOHM 1/6W +/-5%
R153	645 046 2191	CF RES 10 KOHM 1/6W +/-5%	R711	645 046 2689	CF RES 390OHM 1/6W +/-5%
R154	645 046 2191	CF RES 10 KOHM 1/6W +/-5%	R712	645 046 2993	CF RES 6.8 KOHM 1/6W +/-5%
R155	645 046 2191	CF RES 10 KOHM 1/6W +/-5%	R901	645 034 2301	CF RES 560 KOHM 1/2W +/-5%
R156	645 046 2481	CF RES 22 KOHM 1/6W +/-5%	R902	645 045 9825	MOF RES 1OHM 1W +/-5%
R157	645 046 2634	CF RES 33 KOHM 1/6W +/-5%	R904	645 034 2516	MOF RES 47 KOHM 3W +/-5%
R158	645 046 2795	CF RES 47 KOHM 1/6W +/-5%	R905	645 034 2516	MOF RES 47 KOHM 3W +/-5%
R159	645 034 1854	CF RES 1 KOHM 1/6W +/-5%	R906	645 034 2547	CEMENT RES 10 KOHM 5W +/-5%
R160	645 046 2474	CF RES 2.2 KOHM 1/6W +/-5%	R907	645 046 2450	CF RES 22OHM 1/6W +/-5%
R165	645 046 2191	CF RES 10 KOHM 1/6W +/-5%	R908	645 046 2191	CF RES 10 KOHM 1/6W +/-5%
R166	645 046 2474	CF RES 2.2 KOHM 1/6W +/-5%	R909	645 046 2757	CF RES 47OHM 1/6W +/-5%
			R910	645 046 2177	CF RES 100OHM 1/6W +/-5%
			R911	645 046 2429	CF RES 2 KOHM 1/6W +/-5%

LOCATION	PARTS NO.	DESCRIPTION
R912	645 046 2344	CF RES 16 KOHM 1/6W +/-5%
R913	645 046 2276	CF RES 1.2 KOHM 1/6W +/-5%
R914	645 046 2191	CF RES 10 KOHM 1/6W +/-5%
R915	645 046 2757	CF RES 470OHM 1/6W +/-5%
R916	645 046 2894	CF RES 560OHM 1/6W +/-5%
R917	645 046 2757	CF RES 470OHM 1/6W +/-5%
R918	645 046 2467	CF RES 220OHM 1/6W +/-5%
R919	645 046 2757	CF RES 470OHM 1/6W +/-5%
R920	645 046 2306	CF RES 150OHM 1/6W +/-5%
R921	645 046 2191	CF RES 10 KOHM 1/6W +/-5%
R922	645 046 3259	MOF RES 0.22OHM 2W +/-5%
R923	645 046 3495	CEMENT RES 220OHM 5W +/-5%
R924	△ 645 046 2740	CF RES 43 KOHM 1/6W +/-5%
R925	645 046 2474	CF RES 2.2 KOHM 1/6W +/-5%
R928	645 046 2467	CF RES 220OHM 1/6W +/-5%
R929	645 046 2894	CF RES 560OHM 1/6W +/-5%
R930	645 034 1854	CF RES 1 KOHM 1/6W +/-5%
R931	645 034 1854	CF RES 1 KOHM 1/6W +/-5%
R932	645 034 2448	MOF RES 100OHM 3W +/-5%
R933	645 046 2887	CF RES 560OHM 1/2W +/-5%
R934	645 046 3365	MOF RES 470OHM 3W +/-5%
R935	645 048 3288	MOF RES 5.6OHM 3W +/-5%
NTC901	645 034 2561	NTCR RES 100OHM +/-20% 5A
OR	645 046 3501	NTCR RES 100OHM +/-15% 5A
PTC901	645 034 2554	PTCR RES 140HM +/-30%
<b>(TRANSFORMERS)</b>		
T301	△ 645 040 9370	PIN TRANS. CH-14DA
T401	△ 645 046 0777	DRIVE TRANS. VM-14AF
T502	△ 645 046 5994	FBT TRANS. CH-14DXA
T901	△ 645 046 6113	LINE FILTER CH-19DXA 10MH
T902	△ 645 046 5932	POWER TRANS. CH-14DXA VDE
<b>(VARIABLE RESISTORS)</b>		
VR301	645 034 3452	POT VR METAL 1 KOHM 6D. L TYPE
VR302	645 046 4737	POT VR 10 KOHM 6DIA L TYPE
VR303	645 046 4737	POT VR 10 KOHM 6DIA L TYPE
VR304	645 034 3513	POT VR 5 KOHM 6DIA L TYPE
VR401	645 046 4737	POT VR 10 KOHM 6DIA L TYPE
VR501	645 046 4812	POT VR 50 KOHM 6DIA L TYPE
VR502	645 046 4812	POT VR 50 KOHM 6DIA L TYPE
VR503	645 046 4812	POT VR 50 KOHM 6DIA L TYPE
VR901	645 046 4782	POT VR METAL 500OHM 6D. L TYPE
<b>(OSCILLATORS)</b>		
X103	645 046 3518	OSCILLATOR 8 MHZ
X201	645 046 3525	OSCILLATOR 3.579545 MHZ
X202	645 046 3532	OSCILLATOR 4.433619 MHZ
X801	645 046 3518	OSCILLATOR 8 MHZ
<b>(MISCELLANEOUS)</b>		
B201	645 046 5574	L/W HOUSING 1007 24AWG
B501	645 046 5512	L/W HOUSING 1007 24AWG
B101	645 046 5024	CONNECTOR BASE M241858 (N.S.P.)
B701	645 034 3674	CONNECTOR BASE M241852 (N.S.P.)
B901	645 046 4997	CONNECTOR BASE M241835-X (N.S.P.)
B902	645 034 3735	CONNECTOR BASE M241833-X (N.S.P.)
B903	645 034 3698	CONNECTOR BASE M11352 (N.S.P.)
GND3	645 034 3667	CONNECTOR BASE P235142 (N.S.P.)
P401	645 040 9189	CONNECTOR BASE M11386 (N.S.P.)
PIN1	645 046 0371	CONNECTOR BASE 1038H (N.S.P.)
P201	645 046 5284	SIGNAL CABLE DXA SERIES 2919
ZR901	645 038 5391	TNR 471KD20

## FUNCTION BOARD VMC-8613/8614P

645 046 6724

<b>(RESISTOR)</b>		
R114	645 046 2467	CF RES 220OHM 1/6W +/-5%
<b>(SWITCHES)</b>		
S101	645 046 5109	TACT SWITCH TSP620-1150
OR	645 046 5093	LIGHT TOUCH SWITCH EVQ21305R
S102	645 046 5109	TACT SWITCH TSP620-1150
OR	645 046 5093	LIGHT TOUCH SWITCH EVQ21305R
S103	645 046 5109	TACT SWITCH TSP620-1150
OR	645 046 5093	LIGHT TOUCH SWITCH EVQ21305R
S104	645 046 5109	TACT SWITCH TSP620-1150
OR	645 046 5093	LIGHT TOUCH SWITCH EVQ21305R
S105	645 046 5109	TACT SWITCH TSP620-1150
OR	645 046 5093	LIGHT TOUCH SWITCH EVQ21305R
S106	645 046 5109	TACT SWITCH TSP620-1150

LOCATION	PARTS NO.	DESCRIPTION
S106	645 046 5093	LIGHT TOUCH SWITCH EVQ21305R
S107	645 046 5109	TACT SWITCH TSP620-1150
OR	645 046 5093	LIGHT TOUCH SWITCH EVQ21305R
S108	645 046 5109	TACT SWITCH TSP620-1150
OR	645 046 5093	LIGHT TOUCH SWITCH EVQ21305R
<b>(MISCELLANEOUS)</b>		
LED101	645 046 4713	LED 7*2.5MM
LED101	645 046 5277	LED HOLDER QLG-4S-N2W
	645 048 3554	L/W HOUSING L=160MM

## SIGNAL BOARD CM-21DXA

645 046 6731

<b>(CAPACITORS)</b>		
C201	645 046 3549	EC CAP 10UF 25V +/-20%
C202	645 046 3549	EC CAP 10UF 25V +/-20%
C205	645 046 3556	EC CAP 100UF 16V +/-20%
C206	645 034 3025	MEMB CAP .22UF 63V +/-5%
C207	645 034 3025	MEMB CAP .22UF 63V +/-5%
C208	645 046 3549	EC CAP 10UF 25V +/-20%
C209	645 046 3549	EC CAP 10UF 25V +/-20%
C212	645 046 3556	EC CAP 100UF 16V +/-20%
C213	645 046 3549	EC CAP 10UF 25V +/-20%
C214	645 046 3549	EC CAP 10UF 25V +/-20%
C217	645 046 3556	EC CAP 100UF 16V +/-20%
C220	645 034 3025	MEMB CAP .22UF 63V +/-5%
C261	645 046 4300	MEMB CAP .033UF 100V +/-5%
C262	645 046 4300	MEMB CAP .033UF 100V +/-5%
C263	645 046 4300	MEMB CAP .033UF 100V +/-5%
C701	645 046 3549	EC CAP 10UF 25V +/-20%
C702	645 046 3549	EC CAP 10UF 25V +/-20%
C703	645 046 3549	EC CAP 10UF 25V +/-20%
C704	645 034 2837	CC CAP 104PF 50V Y5V
C705	645 046 3563	EC CAP 100UF16V +/-20% 105DE C
<b>(DIODES)</b>		
D111	645 034 3315	DIODE 1N4148
OR	645 034 3308	DIODE 1N4148
D201	645 034 3315	DIODE 1N4148
OR	645 034 3308	DIODE 1N4148
D202	645 034 3315	DIODE 1N4148
OR	645 034 3308	DIODE 1N4148
D203	645 034 3315	DIODE 1N4148
OR	645 034 3308	DIODE 1N4148
D204	645 034 3315	DIODE 1N4148
OR	645 034 3308	DIODE 1N4148
D205	645 034 3315	DIODE 1N4148
OR	645 034 3308	DIODE 1N4148
D206	645 034 3315	DIODE 1N4148
OR	645 034 3308	DIODE 1N4148
D207	645 034 3315	DIODE 1N4148
OR	645 034 3308	DIODE 1N4148
D208	645 034 3315	DIODE 1N4148
OR	645 034 3308	DIODE 1N4148
D701	645 034 3315	DIODE 1N4148
OR	645 034 3308	DIODE 1N4148
D702	645 034 3315	DIODE 1N4148
OR	645 034 3308	DIODE 1N4148
D704	645 034 3315	DIODE 1N4148
OR	645 034 3308	DIODE 1N4148
D705	645 034 3315	DIODE 1N4148
OR	645 034 3308	DIODE 1N4148
D706	645 034 3315	DIODE 1N4148
OR	645 034 3308	DIODE 1N4148
<b>(INTEGRATED CIRCUITS)</b>		
IC201	645 046 4386	LINEAR IC BA7612N
IC202	645 046 4386	LINEAR IC BA7612N
IC701	645 046 4386	LINEAR IC BA7612N
<b>(SEMICONDUCTORS)</b>		
Q201	645 046 4508	TR 2SA1015GR
Q202	645 034 3216	TR 2SC1815GR
Q203	645 046 4508	TR 2SA1015GR
Q204	645 046 4508	TR 2SA1015GR
Q205	645 034 3216	TR 2SC1815GR
Q206	645 034 3216	TR 2SC1815GR
Q207	645 034 3216	TR 2SC1815GR
<b>(RESISTORS)</b>		
R201	645 034 2349	CF RES 75OHM 1/6W +/-5%

LOCATION	PARTS NO.	DESCRIPTION
R202	645 046 2467	CF RES 220OHM 1/6W +/-5%
R203	645 046 2467	CF RES 220OHM 1/6W +/-5%
R204	645 046 3006	CF RES 680 KOHM 1/6W +/-5%
R205	645 046 2474	CF RES 2.2 KOHM 1/6W +/-5%
R206	645 034 1854	CF RES 1 KOHM 1/6W +/-5%
R207	645 034 1854	CF RES 1 KOHM 1/6W +/-5%
R208	645 046 2467	CF RES 220OHM 1/6W +/-5%
R209	645 046 2788	CF RES 4.7 KOHM 1/6W +/-5%
R210	645 034 2349	CF RES 75OHM 1/6W +/-5%
R211	645 046 2191	CF RES 10 KOHM 1/6W +/-5%
R212	645 046 2191	CF RES 10 KOHM 1/6W +/-5%
R213	645 046 2559	CF RES 2.7 KOHM 1/6W +/-5%
R214	645 034 2349	CF RES 75OHM 1/6W +/-5%
R215	645 046 2467	CF RES 220OHM 1/6W +/-5%
R216	645 046 2467	CF RES 220OHM 1/6W +/-5%
R217	645 046 3006	CF RES 680 KOHM 1/6W +/-5%
R218	645 046 2474	CF RES 2.2 KOHM 1/6W +/-5%
R219	645 034 1854	CF RES 1 KOHM 1/6W +/-5%
R220	645 034 1854	CF RES 1 KOHM 1/6W +/-5%
R221	645 046 2467	CF RES 220OHM 1/6W +/-5%
R222	645 034 2349	CF RES 75OHM 1/6W +/-5%
R223	645 046 2467	CF RES 220OHM 1/6W +/-5%
R224	645 046 2467	CF RES 220OHM 1/6W +/-5%
R225	645 046 3006	CF RES 680 KOHM 1/6W +/-5%
R226	645 046 2474	CF RES 2.2 KOHM 1/6W +/-5%
R227	645 034 1854	CF RES 1 KOHM 1/6W +/-5%
R228	645 034 1854	CF RES 1 KOHM 1/6W +/-5%
R229	645 046 2467	CF RES 220OHM 1/6W +/-5%
R256	645 046 2757	CF RES 47OHM 1/6W +/-5%
R257	645 046 2757	CF RES 47OHM 1/6W +/-5%
R258	645 034 1854	CF RES 1 KOHM 1/6W +/-5%
R259	645 034 1854	CF RES 1 KOHM 1/6W +/-5%
R260	645 034 1854	CF RES 1 KOHM 1/6W +/-5%
R701	645 046 3044	CF RES 8.2 KOHM 1/6W +/-5%
R702	645 046 2467	CF RES 220OHM 1/6W +/-5%
R703	645 046 3044	CF RES 8.2 KOHM 1/6W +/-5%
R704	645 046 2467	CF RES 220OHM 1/6W +/-5%
R705	645 046 3044	CF RES 8.2 KOHM 1/6W +/-5%
R706	645 046 2467	CF RES 220OHM 1/6W +/-5%
R708	645 046 2757	CF RES 47OHM 1/6W +/-5%
R709	645 046 2757	CF RES 47OHM 1/6W +/-5%
		<b>(JACKS)</b>
RCA701	645 046 5079	RCA JACK JPJ1151-01-230
RCA703	645 046 5079	RCA JACK JPJ1151-01-230
RCA705	645 046 5079	RCA JACK JPJ1151-01-230
		<b>(MISCELLANEOUS)</b>
	645 046 5055	BNC CONNECTOR HXC0336-01-010 (N.S.P.)
	645 046 5062	BNC CONNECTOR HXC0312-01-210 (N.S.P.)
P201	645 046 5048	CONNECTOR BASE M2418511R (N.S.P.)
YC201	645 046 5314	VERTICAL SOKET TCS7940-01-2011
YC202	645 046 5307	VERTICAL SOCKET TCS7945-14-201

## ACCESSORIES & PACKING MATERIALS

645 035 6254	PE BAG 15 INCH 16**16**32"
645 034 4336	POLYFORM CM-14A
△ 645 038 5933	POWER CORD NS8-5175N
645 067 9919	USER MANUAL 14/19DXA-NTSC
645 048 3394	LOGO 19DXA
645 067 9896	CARTON VMC-8613B NTSC




# CIRCUIT DIAGRAMS & PRINTED WIRING BOARDS

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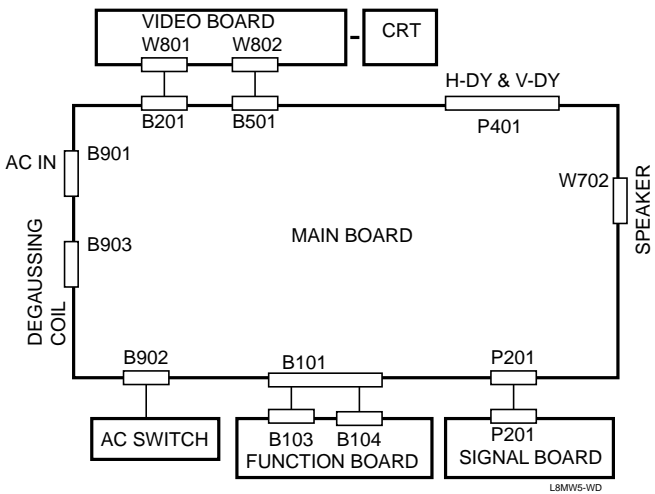
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**PRODUCT SAFETY NOTICE**

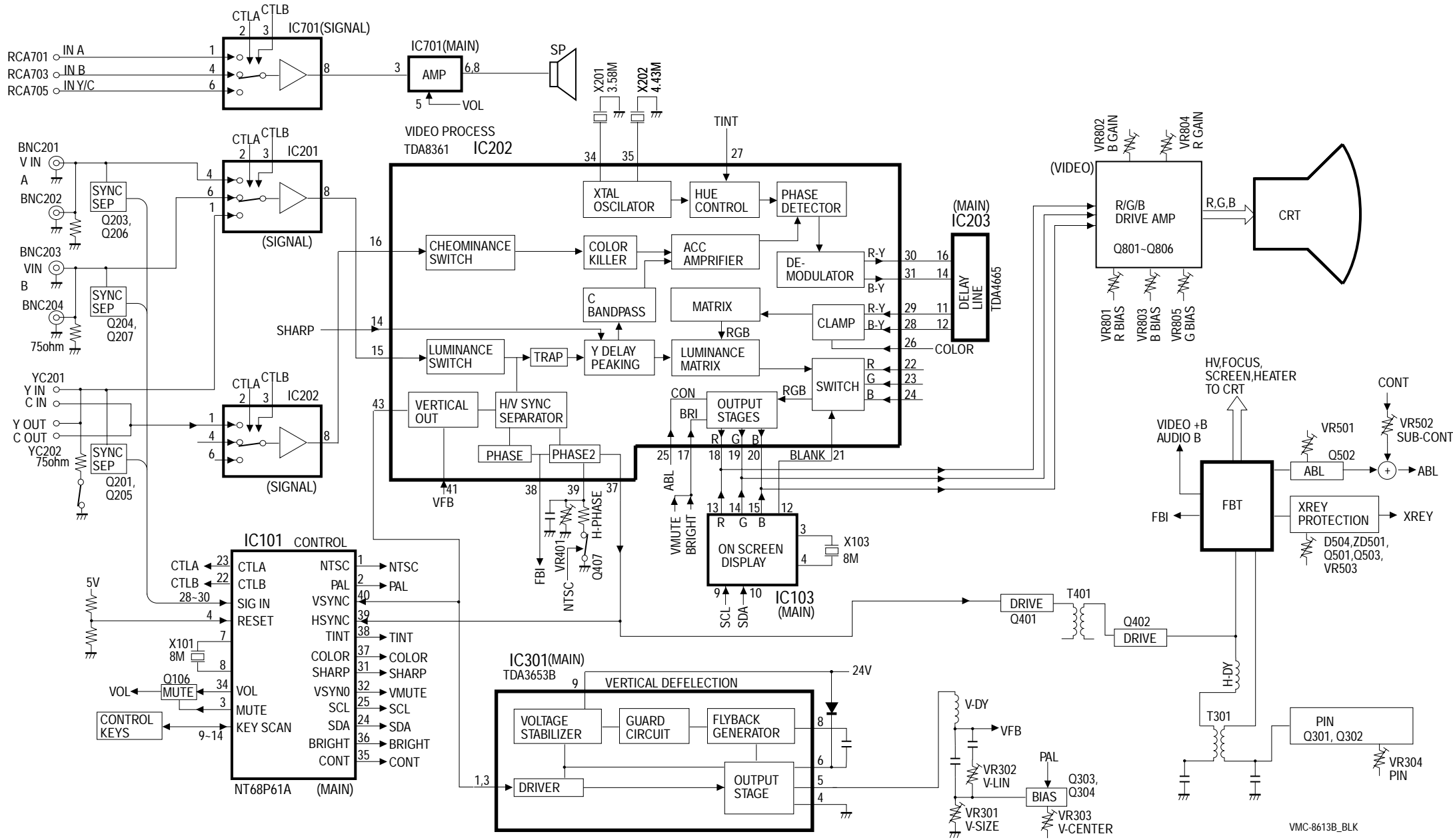
THE COMPONENTS DESIGNATED BY A SYMBOL (  ) IN THIS SCHEMATIC DIAGRAM DESIGNATES COMPONENTS WHOSE VALUE ARE OF SPECIAL SIGNIFICANCE TO PRODUCT SAFETY. SHOULD ANY COMPONENT DESIGNATED BY A SYMBOL NEED TO BE REPLACED, USE ONLY THE PART DESIGNATED IN THE PARTS LIST.  
DO NOT DEVIATE FROM THE RESISTANCE, WATTAGE AND VOLTAGE RATINGS SHOWN.

BLOCK DIAGRAM & CIRCUIT DIAGRAMS

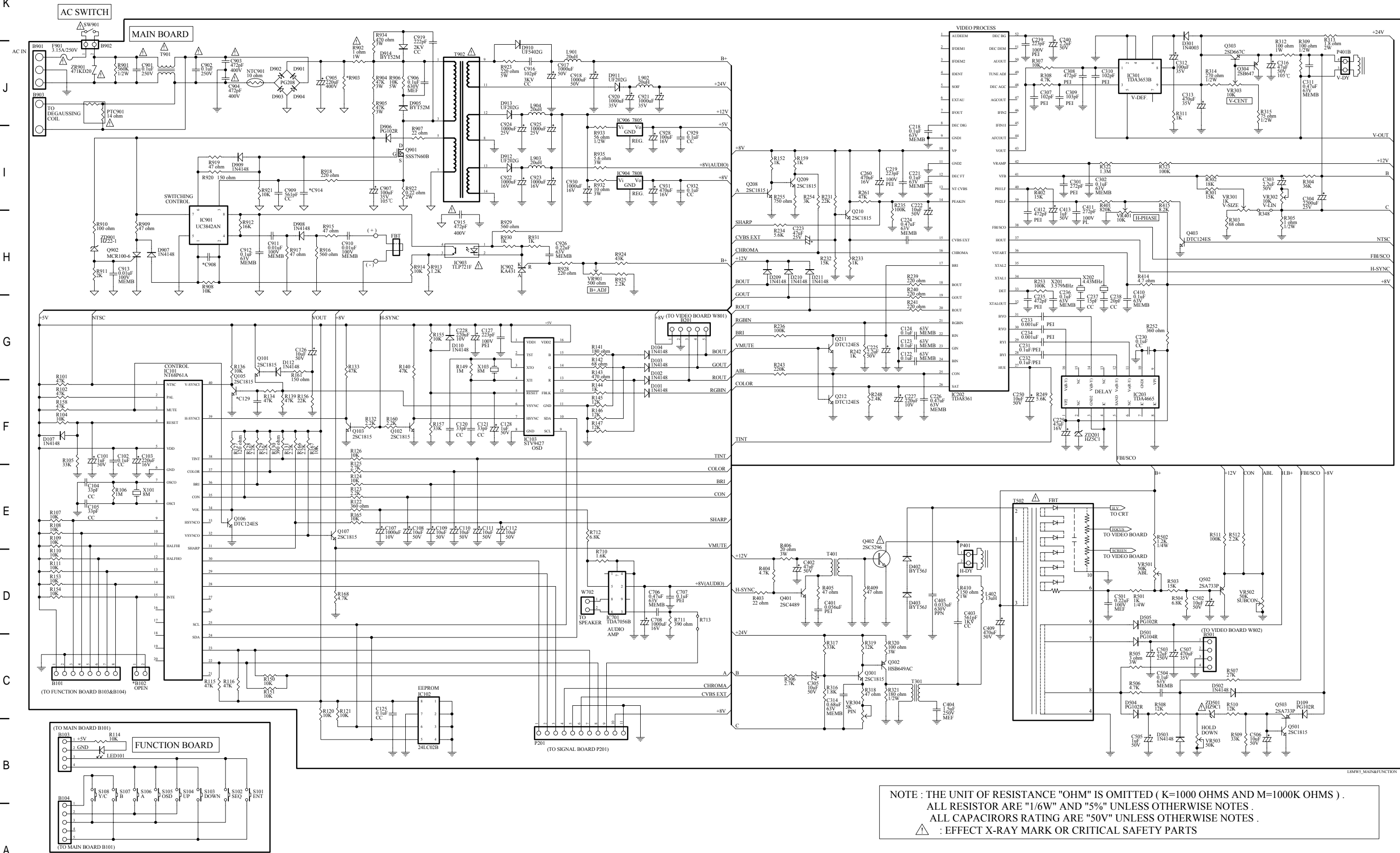
OVERALL WIRING



BLOCK DIAGRAM

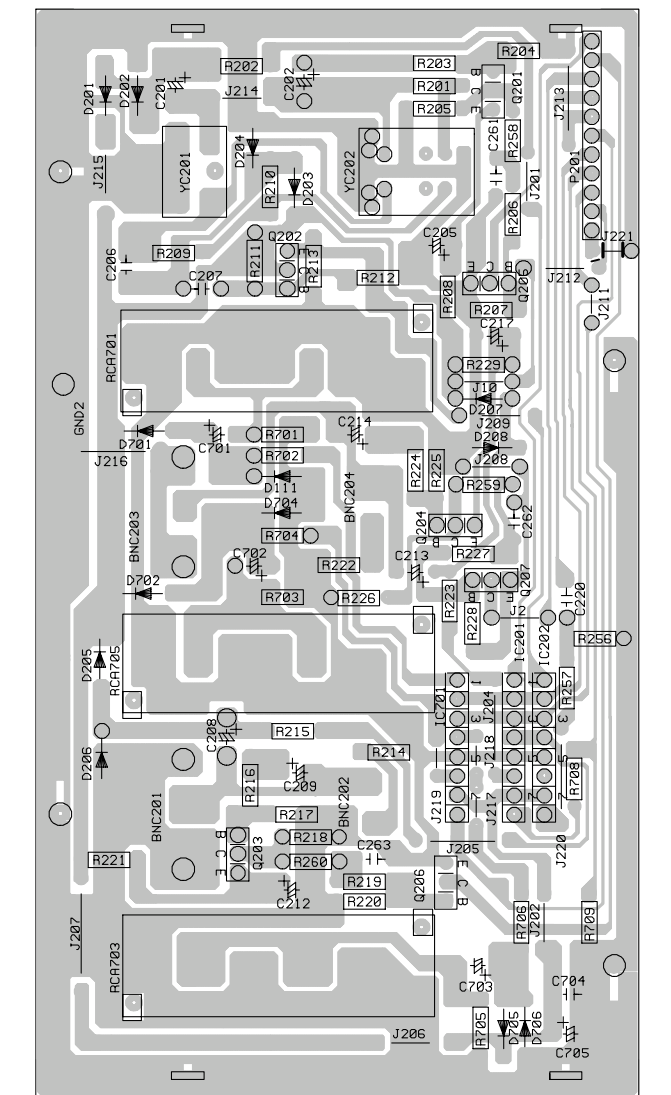
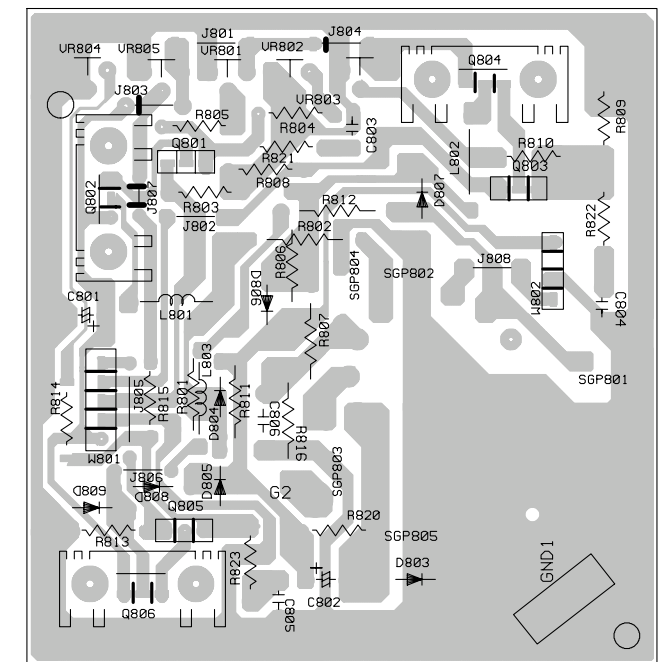


# MAIN & FUNCTION BOARDS CIRCUIT DIAGRAM



NOTE : THE UNIT OF RESISTANCE "OHM" IS OMITTED ( K=1000 OHMS AND M=1000K OHMS ).  
 ALL RESISTOR ARE "1/6W" AND "5%" UNLESS OTHERWISE NOTES .  
 ALL CAPACITORS RATING ARE "50V" UNLESS OTHERWISE NOTES .  
 ⚠ : EFFECT X-RAY MARK OR CRITICAL SAFETY PARTS

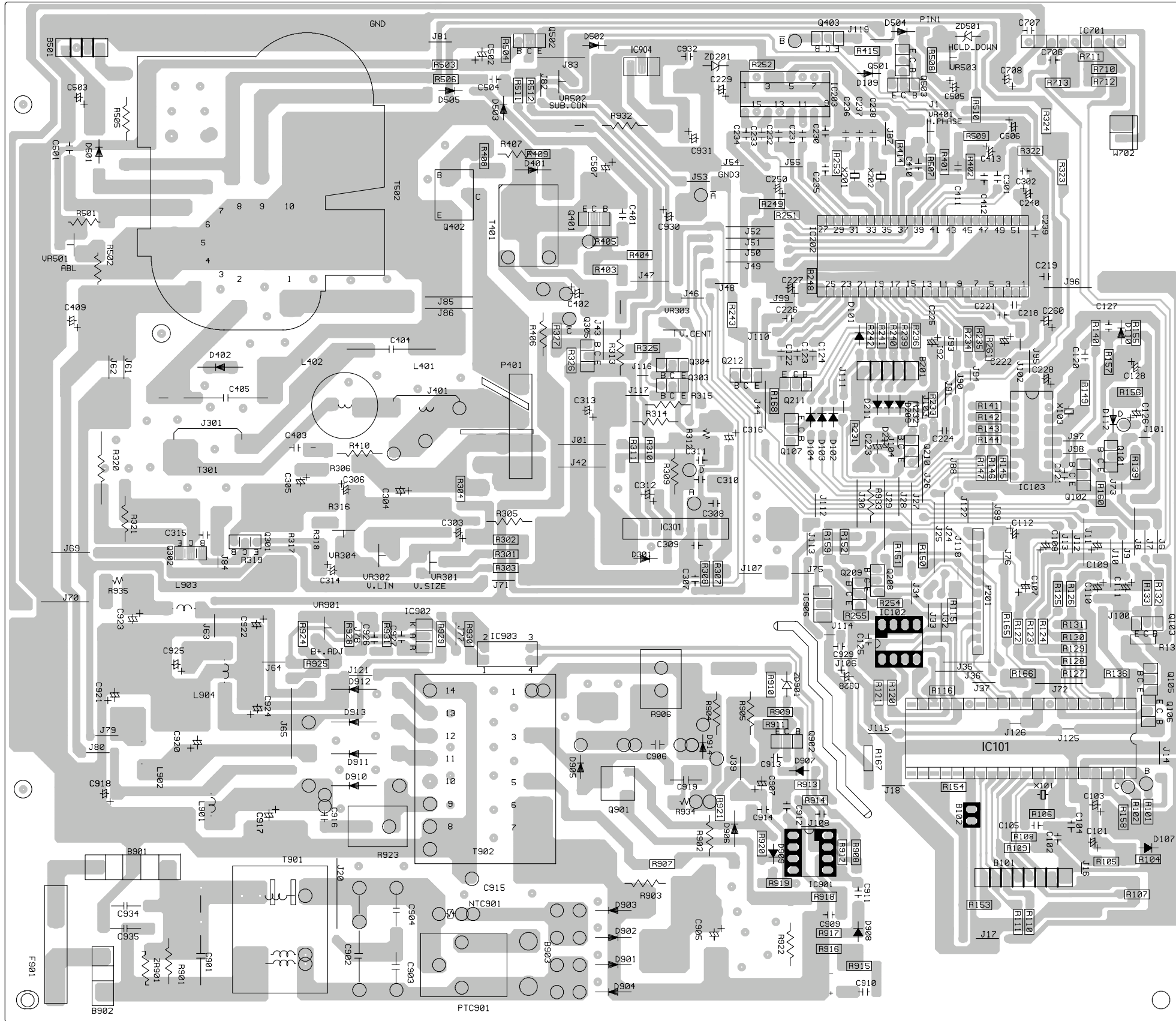
**VIDEO P.W.B.**



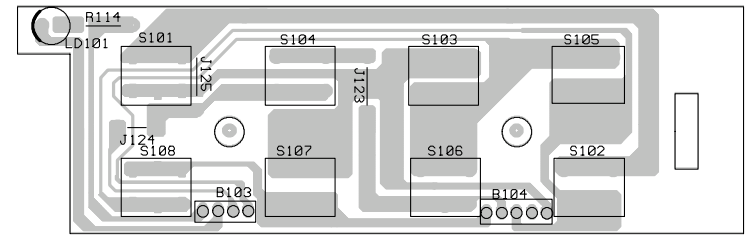
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C5

**MAIN P.W.B.**



**FUNCTION P.W.B.**





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SANYO Electric Co., Ltd.  
Osaka, Japan